 23. (New) The information recording medium as claimed in claim 21, further comprising a bonding layer disposed between the translucent layer and the second recording layer.

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### REMARKS

Claims 2-13 have been examined. Claims 2-6, 9-11, and 13 have been rejected under 35 U.S.C. § 112, second paragraph, and claims 2-13 have been rejected under 35 U.S.C. § 103(a).

#### **I. Rejection under 35 U.S.C. § 112, second paragraph**

Claims 2-6, 9-11, and 13 have been rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. Applicants respond to the various grounds of the rejection below.

#### **A. The term “substantially” recited in claims 2-4 and 9-11**

 The Examiner has rejected claims 2-4 and 9-11 because the term “substantially” allegedly renders the claims indefinite. Applicants respectfully disagree.

In previous Amendments, Applicants noted that terms such as “substantially equal” do not render a claim indefinite, as long as “one of ordinary skill in the art would understand what is claimed. . .in light of the specification” even if experimentation may be needed. Andrew Corp.

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v. Gabriel Electronics, Inc., 847 F.2d 819, 821 (Fed. Cir.), *cert denied*, 488 U.S. 927 (1988); see also, Cedarapids, Inc. v. Nordberg, Inc., 895 F.Supp. 1230, 1252 (N.D. Iowa 1995); U.S. Philips Corp., v. National Micronetics, Inc., 188 U.S.P.Q. 662, 667-8 (S.D.N.Y. 1976).

Furthermore, Applicants demonstrated that the present application provides an illustrative, non-limiting example of such use of the phrase “substantially the same thickness” on page 11 of the present application. Specifically, page 11, lines 13-15, states that the thickness dL1 for a land L of the layer 2 is substantially equal to the thickness dL2 for a land L of the layer 5. Moreover, page 11, lines 18-23, describe an example of the thickness dL1 as being approximately 0.1039  $\mu\text{m}$  and describe an example of the thickness dL2 as being approximately 0.1196  $\mu\text{m}$ .

In addition Applicants noted that the specification provides many examples and guidelines for the scope of the phrase “substantially the same thickness”. For example, Applicants noted that the illustrative equations on pages 19 and 20 of the present specification for calculating the thickness of features in various layers.

On page 4 of the Office Action, the Examiner states that Applicants’ arguments regarding the definiteness of claims 2-4 and 9-11 are not persuasive.

**1. Arguments regarding the Andrew Corp. case**

**a. Examiner's response that the Andrew Corp. case does not support Applicants' position**

The Examiner questions Applicants' reliance on the Andrew Corp. case to support the position that terms such as "substantially equal" do not render a claim indefinite, as long as "one of ordinary skill in the art would understand what is claimed. . .in light of the specification" even if experimentation may be needed. Specifically, the Examiner states:

Andrew Corp. v. Gabriel Electronics, Inc. is directed to *substantially* increase the efficiency of the compound as a copper extractant in view of the general guidelines contained in the specification. The cited case law is irrelevant because Applicant's instant specification does not show one of ordinary skill in the art the degrees of thickness.

(Office Action, page 4, lines 16-20 (emphasis in original)).

**b. The Examiner is misinterpreting the Andrew Corp. case**

Applicants respectfully submit that the Examiner is misinterpreting the Andrew Corp. case because the patent at issue in the case is completely unrelated to "the efficiency of the compound as a copper extractant" and does not support other positions as alleged by the Examiner. Upon reviewing M.P.E.P. § 2173.05(b)(D), Applicants assume that the Examiner is confusing the Andrew Corp. case with the older, 1975 case, In re Mattison, which is discussed in M.P.E.P. § 2173(b)(D) and appears to mention the efficiency of the compound.

Furthermore, a reading of the Andrew Corp. case demonstrates that it does, in fact,

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support Applicants position that that terms such as “substantially equal”, as used in claims 2-4 and 9-11, do not render a claim indefinite. In the Andrew Corp. case, the patent at issue relates to a microwave antenna having a particular radiation pattern. Specifically, the antenna produces a radiation pattern in the horizontal direction (i.e. the E-plane illumination pattern) that is substantially equal to the radiation pattern in the vertical direction (i.e. the H-plane illumination pattern). Claim 3 of the patent recites such features of the antenna:

3. A conical horn-reflector antenna as set forth in claim 2 which produces substantially equal E and H plane illumination patterns.

Andrew Corp., 847 F.2d at 821 (emphasis in original).

In the case, the Defendant argued that claim 3 was invalid under 35 U.S.C. § 112, second paragraph, because the term “substantially equal” rendered the claim indefinite. The Federal Circuit was not persuaded by the Defendant’s arguments and noted that:

“substantially equal” is a term of degree, and that its acceptability depends on “whether one of ordinary skill in the art would understand what is claimed ... in light of the specification”, even if experimentation may be needed.

Id. at 821.

Moreover, the Federal Circuit noted that the use of terms such as “close proximity” or “substantially equal” is proper, even if the terms are not specifically or precisely defined, if the technology of the patent does not allow for a more precise description of the claimed subject matter. For instance, the court noted:

[The Defendant] attacks the claims as indefinite, primarily because “close proximity” is not specifically or precisely defined. As stated in the district court’s Memorandum Decision, “to accept [the Defendant’s] contention would turn the construction of a patent into a mere semantic quibble that serves no useful

purpose.” In Rosemount the district court found that “‘close proximity’ is as precise as the subject matter permits”.

Id. at 821 (emphasis added; citations omitted). Following the logic of the above standard, the Federal Circuit stated:

[The patentee] asserted that the [patent] claims could not reasonably be expressed more precisely; and indeed the court found that it “became very clear during trial ... that curves showing RPEs for horn antennas will never be identical”.

Id. at 822 (emphasis added). Accordingly, the Federal Circuit held that the term “substantially equal” was definite, even though it was not precisely defined in the specification. Id.

Accordingly, contrary to the Examiner’s assertion, the Andrew Corp. case supports Applicants’ position, and the term “substantially equal”, as recited in claims 2-4 and 9-11, is clear and definite.

**2. Arguments that the definition of the term “substantially” is not defined in the claim or specification**

**a. Examiner’s argument**

On page 4, line 20, to page 5, line 5, of the Office Action, the Examiner states:

The claim language is misleading and one of ordinary skill in the art would not clearly understand whether the grooves in the first recording layer are or are not of the same thickness as the grooves in the second recording layer. The term “substantially” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one skilled in the art would not be reasonably apprised of the scope of the invention.

**b. Applicants response**

**1. The term “substantially” is clear and definite in light of the nature of the technology of the present application**

Applicants submit that the term “substantially equal” provides one skilled in the art with a sufficiently definite description of the relative thicknesses of the first and second recording layers. Specifically, as noted in the Andrew Corp. case, the Federal Circuit noted that the claim term “substantially equal” is clear and definite, even in instances in which its definition is not specifically or precisely defined in the claims or specification. Andrew Corp., 847 F.2d at 821-22. For example, when the term “substantially equal” is as precise of a term as the technology will permit, it does not need to be defined more specifically. Id.

In the Andrew Corp. case, the subject matter was related to the relationship between E-plane and H-plane illumination patterns for radiation, and the patent presumably taught creating equal E-plane and H-plane illumination patterns is desirable. However, due to the nature of the technology, the court noted that such patterns will never be identical. Id. at 822. Thus, the court concluded that the term “substantially equal” was the most precise term (allowed by the technology) that could accurately describe the relationship between the E-plane and H-plane illumination patterns.

The technology of the present application is similar to the technology of patent at issue in the Andrew Corp. case because forming first and second recording layers that have identical characteristics (e.g. grooves that have exactly the same thicknesses (claim 2)) is very difficult and, in many instances, is impossible. Specifically, in the illustrative, non-limiting embodiment

shown in Fig. 1, a lithography process is used to form grooves in the transparent substrate 1, and a spin coating process is used to form the first recording layer 2 on the transparent substrate 1. (Page 9, lines 16-19). Also, sputtering process is then performed to deposit a translucent film layer 3 on the first recording layer 2. (Page 10, lines 7-9). In addition, a lithography process is used to form grooves in the transparent substrate 7, a sputtering process is used to deposit the reflective film layer 6 on the substrate 7, and a sputtering process is used to form the second recording layer 5 on the reflective film layer 6. (Page 10, lines 14-17).

The lithography, sputtering, and spin coating processes used to directly or indirectly form the layers 2 and 5 are relatively accurate. However, in many cases, their accuracy has a margin of error. In some cases, the layers 2 and 6 are formed with the intention that the grooves in the first recording layer 2 have the exact same thickness as the grooves in the second recording layer 5. However, in actuality, the thicknesses of grooves are often not identical due to the margin of error.

Accordingly, the use of the phrase “substantially the same thickness” in claim 2 to describe the relationship of the grooves is sufficiently precise in light of the technology of forming the layers. The same is true with respect to the use of the term “substantially” in claims 3, 4, and 9-11.

**2. The specification provides an illustrative, non-limiting example of a standard for ascertaining the scope of the term “substantially”**

As noted above, the Examiner argues that the specification does not provide a standard for ascertaining the requisite degree of the term “substantially” and that one skilled in the art would not be reasonably apprised of the scope of the invention. Applicants respectfully disagree.

For example, the present application provides an illustrative, non-limiting example of such use of the phrase “substantially the same thickness” on page 11 of the present application. Specifically, page 11, lines 10-15, states that the thickness dL1 for a land L of the layer 2 is substantially equal to the thickness dL2 for a land L of the layer 5 and states that the thickness dG1 for a groove G of the layer 2 is substantially equal to the thickness dG2 for a groove of the layer 5.

Regarding the same non-limiting example, page 11, line 16, to page 12, line 5, states that the thickness dL1 is approximately 0.1039  $\mu\text{m}$  and the thickness dL2 is approximately 0.1196  $\mu\text{m}$ . Moreover, the thickness dG1 is approximately 0.1738  $\mu\text{m}$  and the thickness dG2 is approximately 0.1738  $\mu\text{m}$ .

In addition, pages 19 and 20 of the present application provide an illustrative manner for calculating the thicknesses of the features in the first and second recording layers 2 and 5.

Accordingly, Applicants submit that the specification provides illustrative, non-limiting embodiments to help those skilled in the art to determine the scope of the term “substantially”.



**3. Discussion of the Ex parte Oetiker case**

**a. Examiner's argument**

On page 5, lines 16-19, of the Office Action, the Examiner contends that Ex parte Oetiker, 23 U.S.P.Q.2d 1641 (Bd. Pat. App. & Int. 1992) supports his position that the term “substantial portion” was held to be indefinite under 35 U.S.C. § 112, second paragraph, because the specification lacked some standard for measuring the degree intended.

**b. Applicants' response**

As a preliminary matter, the case did not analyze the term “substantial portion”. Instead, the Board of Patent Appeals and Interferences (“Board”) held that the following terms and phrases were indefinite under 35 U.S.C. § 112, second paragraph:

- (1) “generally pan-shaped”,
- (2) “relatively flat”,
- (3) “non-reinforced condition”,
- (4) “relatively small radii of curvature”, and
- (5) “of the order of”.

Also, Board held that the double recitation of the term “bottom portion” and the antecedent basis for the term “non-recessed bridging portion” in some claims were indefinite.

Also, Applicants respectfully submit that the In re Oetiker case is distinguishable from the facts surrounding the rejection of claims 2-4 and 9-11 of the present application. First, the

invention disclosed and claimed in the Oetiker patent is a clamp structure that is formed with relatively simple and large-scale mechanical structures, such as clamps, hooks, straps, hoses, etc. Therefore, the technology is relatively simple and is not of the nature that would preclude various limitations as being described as “pan-shaped” (as opposed to “*generally* pan-shaped”), “flat” (as opposed to “*relatively* flat”), having “small radii of curvature” (as opposed to “*relatively* small radii of curvature”), etc.

In contrast, in the Andrew Corp. case, the term “substantially equal” was held to be definite because the claims described the relationship between two different radiation patterns that are ideally equal but that, in practice, are never identical. In other words, the nature of the technology prevented one skilled in the art from describing the radiation patterns with any more particularity.

Analogously, the illustrative, non-limiting embodiments of claims 2-4 and 9-11 relate to forming recording layers, which have thicknesses on the order of 0.1 microns and which are directly or indirectly formed by various lithography, spin coating, and sputtering processes. Accordingly, even if the claimed recording layer are designed to have features with identical thicknesses, in many cases the resulting layers do not have exactly the same thicknesses as a result of the margins of error in technologies used to manufacture the layers.

In addition, the In re Oetiker case acknowledges that, even in simple technologies, claim terms such as “relatively” are definite if the specification provides some guidance to one skilled in the art as to the metes and bounds of the terms. As noted above, the specification of the

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present application provides guidance (to the extent possible) as to the meaning of the term “substantially”.

#### **4. Summary**

In light of the discussion above, Applicant submits that the term “substantially” recited in claims 2-4 and 9-11 are definite under 35 U.S.C. § 112, second paragraph.

#### **B. Other grounds of the § 112, second paragraph, rejection**

The Examiner has also rejected claims 9-11 under 35 U.S.C. § 112, second paragraph, because the term “of” was inadvertently omitted from some claim limitations. Applicants submit that the amendments to claims 9-11 overcome the grounds of the rejection and that such amendments do not alter the scope of the claims.

#### **II. Rejection under 35 U.S.C. § 103(a) over U.S.P. 5,881,032 to Ito et al. (“Ito”) and U.S.P. 5,242,729 to Hirata et al. (“Hirata”)**

Claims 2-13 have been rejected as being unpatentable over Ito and Hirata.

**A. Claim 2**

Applicants submit that claim 2 is patentable over Ito and Hirata. For example, the claim states that (1) the grooves in the first recording layer are recessed toward the first transparent substrate and (2) the grooves in the second recording layer are raised toward the first transparent substrate. In other words, the orientation of the grooves in the first recording layer are inverted with respect to the orientation of the grooves in the second recording layer.

Examples of illustrative, non-limiting embodiments of such configuration are shown in Figs. 6 and 7 of the present application. As shown in the figures, the grooves G in the first recording layer 2 are recessed toward the first transparent substrate 1, and the grooves G in the second recording layer 5 are raised toward the first transparent substrate 7.

On the other hand, Ito does not disclose or suggest the claimed orientation of the grooves and lands as clearly shown in Fig. 12 of the reference. In addition, Hirata is likewise deficient of such teaching as clearly shown in Fig. 3 of the reference.

Accordingly, Applicants submit that claim 2 is patentable over the cited references.

**B. Claims 3 and 4**

Since claims 3 and 4 depend upon claim 2, Applicants submit that they are patentable at least by virtue of their dependency.

**C. Claims 5 and 6**

Since claims 5 and 6 have been cancelled without prejudice or disclaimer, the rejection of such claims is moot.

**D. Claim 7**

Since claim 7 contains features that are similar to the features recited in claim 2, Applicants submit that claim 7 is patentable for at least similar reasons.

**E. Claims 9-13**

Since claims 9-13 depend upon claim 7, Applicants submit that such claims are patentable at least by virtue of their dependency.

**III. Newly added claims**

Applicants have added new claims 14-23 to provide more varied protection for the present invention.

**IV. Conclusion**

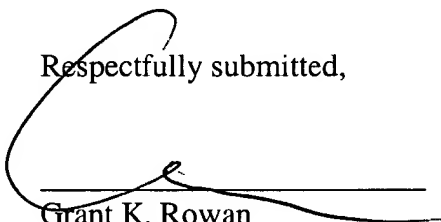
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE

Date: March 6, 2003

**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**The claims are amended as follows:**

2. (Twice amended) An information recording medium, comprising:  
a first information recording/reproduction unit formed by sequentially laminating on a first transparent substrate a first recording layer and a translucent layer, at the least;  
a second information recording/reproduction unit formed by sequentially laminating on a second transparent substrate a reflection layer and a second recording layer, at the least; and  
a transparent bonding layer for bonding said translucent layer and said second recording layer facing each other,  
wherein grooves for writing information, and lands adjacent to said grooves, are formed in and on said first recording layer and said second recording layer, [; and]  
wherein said grooves in said first recording layer and in said second recording layer have substantially the same thickness, while said grooves are thicker than said lands,  
wherein said grooves in said first recording layer are recessed toward said first transparent substrate and away from said lands on said first recording layer, and  
wherein said grooves in said second recording layer are raised toward said first transparent substrate and away from said lands on said second recording layer.

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7. (Once amended) An information recording medium, comprising:

- a first transparent substrate;
- a first recording layer;
- a translucent layer, wherein said first recording layer is disposed between said translucent layer and said first transparent substrate;
- a second recording layer, wherein said translucent layer is disposed between said second recording layer and said first recording layer; and
- a reflection layer, wherein second recording layer is disposed between said reflection layer and said translucent layer,

wherein said first recording layer comprises first grooves and first lands;

wherein said second recording layer comprises second grooves and second lands, [and]

wherein said first grooves are thicker than said first lands,

wherein said grooves in said first recording layer are recessed toward said first transparent substrate and away from said lands on said first recording layer, and

wherein said grooves in said second recording layer are raised toward said first transparent substrate and away from said lands on said second recording layer.

9. (Once amended) The information recording medium as claimed in claim 7, wherein a thickness of said first grooves substantially equals a thickness of said second grooves.

10. (Once amended) The information recording medium as claimed in claim 7,



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wherein a thickness of said first lands substantially equals a thickness of said second lands.

11. (Once amended) The information recording medium as claimed in claim 8,  
wherein a thickness of said first grooves substantially equals a thickness of said second grooves,  
and

wherein a thickness of said first lands substantially equals a thickness of said second  
lands.